

Infant Mortality

An Overview: 2006

Infant Deaths	
Number	82
Rate per 1,000 Live Births	6.88
Neonatal Deaths	
Number	43
Rate per 1,000 Live Births	3.61
Postneonatal Death	
Number	39
Rate per 1,000 Live Births	3.27
Fetal Deaths	
Number	33
Rate per 1,000 Live Births + Fetal Deaths	2.76

During 2006, there were 82 South Dakota resident infant deaths reported for an infant mortality rate of 6.88 per 1,000 live births.

In comparison, there were 82 infant deaths also in 2005, with the infant mortality rate of 7.15 per 1,000 live births. Caution should be used when comparing these annual rates, because the number of South Dakota resident births creates a relatively small denominator to determine infant mortality rates; a small change in the number of infant deaths can result in a relatively large rate change. For example, as Table 36, below, displays and Figure 10, page 40, illustrates, large downward spikes occurred in 1996 and 2000. Decreases of 39 infants from 1995 to 1996 and 37 infants from 1999 to 2000 caused large downward spikes in infant mortality rates. Therefore, infant mortality rates should be monitored over a period of time.

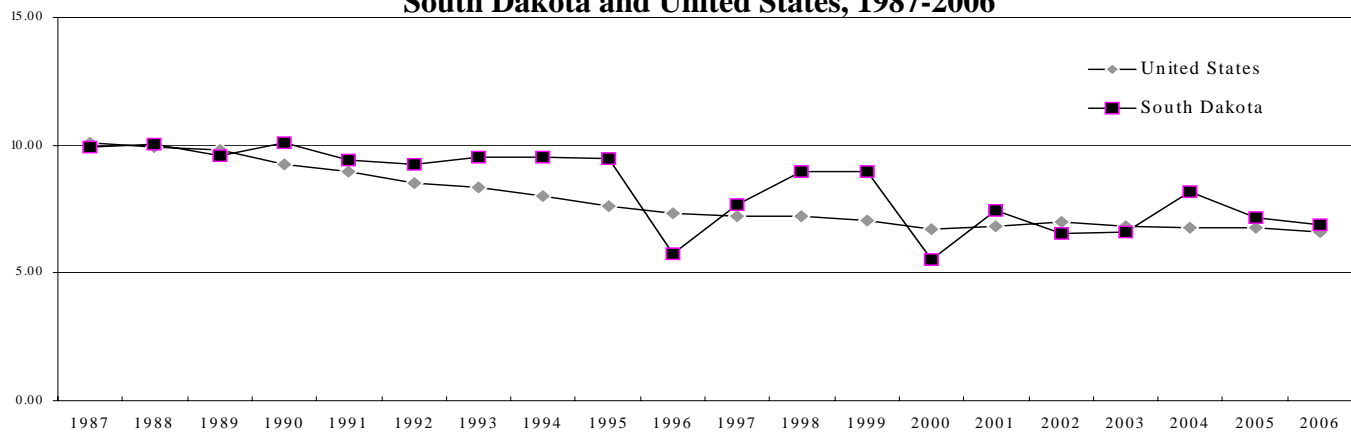
Table 36
Resident Infant Deaths and Infant Mortality Rates,
South Dakota and United States, 1987-2006

Year	United States		South Dakota	
	Number	Mortality Rate	Number	Mortality Rate
2006	*28,100	*6.58	82	6.88
2005	*28,000	*6.76	82	7.15
2004	27,936	6.79	93	8.20
2003	28,025	6.85	73	6.62
2002	28,034	6.97	70	6.54
2001	27,568	6.85	78	7.45
2000	27,200	6.70	57	5.51
1999	27,937	7.06	94	8.94
1998	28,371	7.20	92	8.95
1997	28,045	7.21	78	7.67
1996	28,487	7.32	60	5.73
1995	29,583	7.59	99	9.46
1994	31,710	8.02	100	9.52
1993	33,466	8.37	102	9.52
1992	34,628	8.52	102	9.27
1991	36,766	8.94	103	9.42
1990	38,351	9.22	111	10.10
1989	39,655	9.81	106	9.57
1988	38,910	9.95	112	10.01
1987	38,380	10.08	114	9.93

Note: * U.S. 2006 and 2005 data are provisional.
Infant mortality rates are per 1,000 live births.

Source: National Center for Health Statistics
South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Figure 10
Resident Infant Mortality Rates
South Dakota and United States, 1987-2006



Note: Rate Per 1,000 Live Births.

U.S. 2006 and 2005 data are provisional.

Source: National Center for Health Statistics

South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 37 lists the overall leading causes of infant death in 2006. The leading causes of infant death can be broken down as follows: congenital malformations, 34.1 percent;

certain conditions in perinatal period, 25.6 percent; sudden infant death syndrome, 14.6 percent; and accidents for 8.5 percent.

Table 37
South Dakota Resident Leading Causes of Infant Death, 2006

Total Deaths	82
Causes of Death	
Congenital Malformations, Deformations and Chromosomal Abnormalities.....(Q00-Q99)	28
Congenital malformations of genitourinary system.....(Q50-Q64)	5
Congenital malformations and deformations of musculoskeletal system, limbs and integument.....(Q65-Q85)	4
Anencephaly and similar malformations.....(Q00)	3
Congenital malformations of heart.....(Q20-Q24)	3
Edward's syndrome(Q91.0-Q91.3)	3
Congenital malformations of digestive system.....(Q35-Q45)	2
Patau's syndrome.....(Q91.4-Q91.7)	2
All other congenital anomalies	6
Certain Conditions in Perinatal Period.....(P00-P96)	21
Newborn affected by maternal complications of pregnancy.....(P01)	6
Newborn affected by premature rupture of membranes.....(P01.1)	3
Disorders related to short gestation and low birth weight.....(P07)	5
Extremely low birth weight or extreme immaturity.....(P07.0-P07.2)	4
Newborn affected by complications of placenta, cord, and membranes.....(P02)	2
Hydrops fetalis not due to hemolytic disease.....(P83.2)	2
All other conditions originating in perinatal period	6
Sudden Infant Death Syndrome.....(R95)	12
Accidents.....(V01-X59)	7
Falls.....(W00-W19)	2
Other accidental suffocation and strangulation.....(W76-W77, W81-W84)	2
All other accidents	3
All Other Causes	14

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

There were 43 neonatal deaths (deaths occurring to infants from birth through 27 days old) for a rate of 3.61 deaths per 1,000 live births. There were 39 postneonatal deaths (deaths occurring to infants 28 days to 1 year of age) for a rate of 3.27 deaths per 1,000 live births. In comparison, 2005 neonatal and postneonatal rates were 4.54 and 2.62 per 1,000 live births, respectively. The number of fetal deaths decreased from 43 in 2005 to 33 in 2006, with a corresponding decrease in the fetal mortality rate from 3.74 (per 1,000 live births plus fetal deaths) in 2005 to 2.76 in 2006.

Infant Mortality by Race

Table 38, below, indicates that from 2005 to 2006, the number of South Dakota resident infant deaths decreased for whites and increased for American Indians. As a result, the infant mortality rate per 1,000 live births decreased for whites and increased for American Indians in 2006. American Indian infant mortality rates were also significantly higher than whites were in 2006 and for the 20 year total.

Table 38
South Dakota Resident Infant Deaths and Mortality Rates by
Infant's Race, 1987-2006

Year	Race of Infant				Total	
	White		American Indian			
	Number	Rate	Number	Rate	Number	Rate
2006	50	5.34	26	12.04	82	6.88
2005	55	6.13	25	11.60	82	7.15
2004	62	6.95	28	13.33	93	8.20
2003	43	4.98	27	12.91	73	6.62
2002	41	4.74	26	14.40	70	6.54
2001	52	6.14	25	14.12	78	7.45
2000	36	4.28	19	11.30	57	5.51
1999	66	7.62	24	14.41	94	8.94
1998	61	7.28	29	16.90	92	8.95
1997	45	5.35	30	19.51	78	7.67
1996	39	4.51	20	12.25	60	5.73
1995	69	7.95	30	19.18	99	9.46
1994	66	7.52	33	21.53	100	9.52
1993	67	7.59	35	20.35	102	9.52
1992	69	7.59	32	18.40	102	9.27
1991	73	8.05	25	15.02	103	9.42
1990	77	8.40	33	19.78	111	10.10
1989	64	6.98	40	22.82	106	9.57
1988	87	9.31	25	14.74	112	10.01
1987	76	7.88	36	21.24	114	9.93
1987-2006	1,198	6.76	568	16.07	1,808	8.33

Note: Failure of the races to add to the total is due to other and unknown races.

Infant mortality rates are per 1,000 live births.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

When analyzed by race, Table 39, below, indicates that the South Dakota resident neonatal mortality rate per 1,000 live births decreased for whites and increased for

American Indians from 2005 to 2006. The American Indian neonatal mortality rate is significantly higher than whites for the 20 year total.

Table 39
South Dakota Resident Neonatal Deaths and Mortality Rates
by Infant's Race, 1987-2006

Year	Race of Infant				Total	
	White		American Indian			
	Number	Rate	Number	Rate	Number	Rate
2006	30	3.20	10	4.63	43	3.61
2005	41	4.57	9	4.18	52	4.54
2004	44	4.93	12	5.71	57	5.03
2003	22	2.55	11	5.26	35	3.18
2002	24	2.78	12	6.65	38	3.55
2001	27	3.19	9	5.08	37	3.53
2000	24	2.85	7	4.16	32	3.09
1999	43	4.97	10	6.01	57	5.42
1998	34	4.06	11	6.41	46	4.47
1997	28	3.33	10	6.50	40	3.93
1996	20	2.31	11	6.74	31	2.87
1995	40	4.61	14	8.95	54	5.16
1994	37	4.22	20	13.05	57	5.43
1993	37	4.19	16	9.30	53	4.94
1992	44	4.84	12	6.90	56	5.09
1991	43	4.74	13	7.81	59	5.40
1990	43	4.69	15	8.99	58	5.28
1989	34	3.71	16	9.13	51	4.61
1988	56	5.99	6	3.54	62	5.54
1987	43	4.46	13	7.67	57	4.96
1987-2006	714	4.03	237	6.70	975	4.49

Note: Failure of the races to add to the total is due to other and unknown races.

Neonatal mortality rates are per 1,000 live births.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 40, below, indicates that the postneonatal mortality rate per 1,000 live births increased for white infants and remained the same for American Indian

infants from 2005 to 2006. The American Indian postneonatal mortality rate is significantly higher than whites in 2006 and for the 20 year total.

Table 40
South Dakota Resident Postneonatal Deaths and Mortality
Rates by Infant's Race, 1987-2006

Year	Race of Infant				Total	
	White		American Indian			
	Number	Rate	Number	Rate	Number	Rate
2006	20	2.13	16	7.41	39	3.27
2005	14	1.56	16	7.42	30	2.62
2004	18	1.59	16	7.62	36	3.17
2003	21	2.43	16	7.65	38	3.45
2002	17	1.97	14	7.76	32	2.99
2001	25	2.95	16	9.04	41	3.91
2000	12	1.43	12	7.13	25	2.42
1999	23	2.66	14	8.41	37	3.52
1998	27	3.22	18	10.49	46	4.47
1997	17	2.02	20	13.00	38	3.74
1996	19	2.20	9	5.51	29	2.77
1995	29	3.34	16	10.23	45	4.30
1994	29	3.31	13	8.48	43	4.09
1993	30	3.40	19	11.05	49	4.57
1992	25	2.75	20	11.50	46	4.18
1991	30	3.31	12	7.21	44	4.03
1990	34	3.71	18	10.80	53	4.82
1989	30	3.27	24	13.69	55	4.97
1988	31	3.32	11	11.20	50	4.47
1987	33	3.42	23	13.57	57	4.96
1987-2006	484	2.73	331	9.36	833	3.84

Note: Failure of the races to add to the total is due to other and unknown races.
Postneonatal mortality rates are per 1,000 live births.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 41, below, shows the leading causes of infant death from 2002 to 2006. The overall leading cause of infant death for South Dakota residents from 2002 to 2006 was certain conditions in perinatal period. These conditions include disorders related to short gestation and low birth weight, atelectasis, newborn affected by complications of placenta, cord, and membranes, and newborn affected by maternal complications of pregnancy. Certain conditions in perinatal period accounted for 34.3 percent of all infant

deaths in South Dakota from 2002 to 2006. When analyzed by race, the leading cause of death for white infants was certain conditions in perinatal period with 101 white infant deaths or 40.2 percent of all white infant deaths. The leading cause of death for American Indian infants was congenital malformations, deformations, and chromosomal abnormalities with 33 American Indian infant deaths or 25 percent of all American Indian infant deaths.

Table 41
South Dakota Resident Infant Deaths by Cause of Death and Race, 2002-2006

	Total	Race	
		White	American Indian
Total	400	251	132
Causes of Death			
Certain Conditions in Perinatal Period.....(P00-P96)	137	101	31
Disorders related to short gestation and low birth weight.....(P07)	36	21	13
Extremely low birth weight or extreme immaturity.....(P07.0-P07.2)	27	18	8
Atelectasis.....(P28.0-P28.1)	15	13	1
Newborn affected by complications of placenta, cord, and membranes.....(P02)	16	10	4
Newborn affected by maternal complications of pregnancy.....(P01)	18	13	5
All other conditions originating in the perinatal period	52	44	8
Congenital Malformations, Deformations, and Chromosomal Abnormalities(Q00-Q99)	124	86	33
Congenital malformations of heart.....(Q20-Q24)	26	17	8
Congenital malformations and deformations of musculoskeletal system, limbs, and integument(Q65-Q85)	18	14	3
All other congenital anomalies	80	55	22
Sudden Infant Death Syndrome.....(R95)	54	24	26
Accidents.....(V01-X59)	21	10	11
All Other Causes	64	30	31

Note: Numbers following cause of death are ICD-10 codes.

Failure of the races to add to the total is due to other and unknown races.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Birth Weight

Low birth weight infants, those who are less than 2,500 grams, accounted for 53.5 percent of the South Dakota resident infant deaths from 2002 to 2006. When separated by age, 79.1 percent of the resident

neonatal deaths and 20.6 percent of all resident postneonatal deaths from 2002 to 2006 were low birth weight infants. Table 42, below, illustrates this.

Table 42
South Dakota Resident Neonatal and Postneonatal Infant Deaths by Race of Infant and Birth Weight, 2002-2006

Race of Infant	All Birth Weights	Birth Weight in Grams	
		2499 or less	2500 +
All Races	400	214	184
Neonatal	225	178	46
White	161	124	36
American Indian	54	46	8
Post-Neonatal	175	36	138
White	90	21	69
American Indian	78	15	62

Note: Failure of the races to add to the total is due to other and unknown races.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 43, below, displays infant mortality rates by birth weight. The highest infant mortality rate is for babies born who weigh less than 1,500 grams with a rate of 192.59.

The second highest occurs at 1,500-1,999 grams with a rate of 33.78. The two highest rates occur below 2,500 grams which is considered low birth weight babies.

Table 43
South Dakota Resident Infant Mortality Rates by Birth Weight, 2006

Birth Weight (in Grams)	Births	Infant Deaths	Infant Mortality Rate
Total	11,914	82	6.88
<1500	135	26	192.59
1500-1999	148	5	33.78
2000-2499	555	8	14.41
2500-2999	1,991	14	7.03
3000-3499	4,584	17	3.71
3500+	4,491	11	2.45

Note: Infant mortality rates are per 1,000 live births.

Failure of births to add to total is due to unknown birth weights.

Source: South Dakota Department of Health, Office of Data Statistics, and Vital Records

Infant Mortality and Prenatal Care

Table 44, below, displays infant mortality rates by prenatal care. The highest infant mortality rate, 20.41, occurred when mothers did not have prenatal care.

In comparison, when mothers received prenatal care in the first trimester the infant mortality rate was only 5.74.

Table 44
South Dakota Resident Infant Mortality Rates by Prenatal Care, 2006

Trimester Prenatal Care Began	Births	Infant Deaths	Infant Mortality Rate
Total	11,722	80	6.82
First Trimester	8,015	46	5.74
Second Trimester	2,742	20	7.29
Third Trimester	558	7	12.54
No Prenatal Care	98	2	20.41

Note: Infant mortality rates are per 1,000 live births.

For purposes of calculating infant mortality rates by prenatal care, multiple births and deaths (twins, triplets, etc) are counted only as a single birth and death.

Failure of births and infant deaths to add to the total is due to unknown trimester prenatal care began.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Gestation Period

Table 45, below, displays infant mortality rates by gestation period. The highest infant mortality rate occurred at less than 30 weeks

with a rate of 233.33. At 30 to 32 weeks of gestation, the infant mortality rate fell considerably to 50.42.

Table 45
South Dakota Resident Infant Mortality Rates by Gestation Period, 2006

Weeks of Gestation	Births	Infant Deaths	Infant Mortality Rate
Total	11,914	82	6.88
<30 Weeks	90	21	233.33
30-32 Weeks	119	6	50.42
33-34 Weeks	214	7	32.71
35 Weeks	213	2	9.39
36 Weeks	468	8	17.09
37 Weeks	1,068	3	2.81
38 Weeks	2,131	9	4.22
39 Weeks	3,556	12	3.37
40+ Weeks	4,035	14	3.47

Note: Infant mortality rates are per 1,000 live births.

Failure of births and infant deaths to add to the total is due to unknown weeks of gestation.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Tobacco Use

Table 46, below, displays infant mortality rates by tobacco use of the mother. Mothers who reported they did use tobacco while pregnant had an infant mortality rate

of 10.61, while mothers who reported they did not use tobacco while pregnant had an infant mortality of 5.62.

Table 46
South Dakota Resident Infant Mortality Rates by Tobacco Use of Mother, 2006

Tobacco Use of Mother	Births	Infant Deaths	Infant Mortality Rate
Total	11,914	82	6.88
Yes	3,111	33	10.61
No	8,721	49	5.62

Note: Infant mortality rates are per 1,000 live births.

Failure of births to add to the total is due to unknown tobacco use of the mother.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 47, below, displays infant mortality rates by tobacco use of the mother from 2002 to 2006. Mothers who reported they did use tobacco while pregnant had an infant

mortality rate of 10.80, while mothers who reported they did not use tobacco while pregnant had an infant mortality of 6.14.

Table 47
South Dakota Resident Infant Mortality Rates by Tobacco Use of Mother, 2002-2006

Tobacco Use of Mother	Births	Infant Deaths	Infant Mortality
Total	56,439	400	7.09
Yes	11,390	123	10.80
No	44,921	276	6.14

Note: Infant mortality rates are per 1,000 live births.

Failure of births to add to the total is due to unknown tobacco use of the mother.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

